MICHAEL G. COTTON

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Summary

Electrical engineer with Masters Degree and fifteen years experience in radio science research.

Five years experience as project leader of cutting-edge research with high visibility and heavy political implications.

Areas of Expertise

- **Interference effects** on wireless radio receivers
- **Ultrawideband (UWB) technologies**
- **Applied electromagnetics**, antenna theory, and radiowave propagation
- Usage and limitations of test and measurement equipment
- Random processes and digital signal processing
- Written publication and oral presentation of technical material
- Program development

Work Experience

Institute for Telecommunication Sciences (ITS) 1990 – 2005
National Telecommunications and Information Administration (NTIA)
U.S. Department of Commerce

Project Leader, Ultrawideband Interference to Digital Satellite Television (DTV) 2003 – 2005

- Cooperative Research Agreement with Freescale, Inc.
- Managed a team of senior research engineers.
- Designed and implemented scientific experiment to assess interference effects of UWB signals on DTV receivers.
- Continuously kept UWB community abreast of progress via formal oral presentations and informal written reports.
- Published final results in a three-report series [1 – 3].

Project Leader, Ultrawideband Interference to the Global Positioning System (GPS) 1999 – 2002

- Research Project with NTIA's Office of Spectrum Management
- Managed a team of research engineers.
- Designed and implemented scientific experiment to assess interference effects of UWB signals on GPS.
- Published results [5].

Electronics Engineer, Radio Propagation Measurements Group 1995 – 2002

Electronics Engineer, Millimeter-Wave Laboratory 1990 – 1997

Education

University of Colorado, Boulder, Colorado 1989 – 2003

Master's Degree in Electrical and Computer Engineering May 1999

- Focus on applied electromagnetics
- Thesis was published in Radio Science [4].

Bachelor's Degree in Aerospace Engineering May 1992

Awards

- 2002 U.S. Department of Commerce **Gold Medal Award** for distinguished achievement in the development of national policies for ultrawideband radio technologies.
- 2002 Outstanding Journal Publication Award [4].
- 1999 Outstanding NTIA Technical Report Award [6].
- 1999 Outstanding Journal Publication Award [7].

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Publications

[1] M. Cotton, R. Achatz, J. Wepman, and B. Bedford, “Ultrawideband interference potential: Part 1 – Procedures to characterize ultrawideband emissions and measure interference susceptibility of C-band satellite digital television receivers,” NTIA Report TR-05-419, Feb. 2005.

[2] M. Cotton, R. Achatz, J. Wepman, and P. Runkle, “Ultrawideband interference potential: Part 2 – Measurement of gated-noise interference to C-band satellite digital television receivers,” NTIA Report TR-05-429, Aug. 2005.

[3] M. Cotton, R. Achatz, J. Wepman, and R. Dalke, “Ultrawideband interference potential: Part 3 – Measurement of ultrawideband interference to C-band satellite digital television receivers,” NTIA Report TR-05-439, Dec. 2005.

[4] M. Cotton, E. Kuester, and C. Holloway, “An investigation into the geometric optics approximation for indoor propagation models,” *Radio Science*, Vol. 37, No. 4, pp. 1 - 17, Jul. – Aug. 2002.

[5] J. Hoffman, M.Cotton, R. Achatz, R. Statz, and R. Dalke, “Measurement to determine potential interference of GPS receivers from ultrawideband transmission systems,” NTIA Report TR-00-384, Feb. 2001.

[6] M. Cotton, R. Achatz, Y. Lo, C. Holloway, “Indoor polarization and directivity measurements at 5.8 GHz,” NTIA Report 00-372, Nov. 1999.

[7] C. Holloway, M. Cotton, and P. McKenna, “A model for predicting the power delay profile characteristics inside a room,” *IEEE Transactions on Vehicular Technology*, Vol. 48, No. 4, pp. 1110 – 1120, Jul. 1999.